

## DETAILED ACTION

### *Claim Objections*

1. **Claim 4** is objected to because of the following informalities: Claim 4 recites "is a C<sub>16</sub> to C<sub>18</sub> *is* ether carboxylate" which should be replaced with "is a C<sub>16</sub> to C<sub>18</sub> ether carboxylate." Appropriate correction is required.

### *Claim Rejections – 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1-4, 15-18, 26-30, 39, 40, 42-49, 51, 57, 58, 64, 66, 67, and 69** are rejected under 35 U.S.C. 103(a) as being unpatentable over Theyssen (US 5,935,914) in view of Li (US 6,214,777 B1) and Zeman (US 6,458,343 B1).

With regard to **claims 1-4, 15-17, 29, 30, and 39**, Theyssen discloses a lubricant concentrate (see entire document) comprising an ether carboxylate having the formula

$R^1-(O(CH_2)_m)_nOCH_2COO-M^+$ , where  $R^1$  is a linear or branched  $C_3$ - $C_{18}$  alkyl group,  $m$  is equal to 2 or 3,  $n$  is a positive number from 1 to 30, and  $M$  is an alkali metal (column 5, lines 1-20; column 12, line 36 through column 13, line 13). The ether carboxylate is present in the concentrate from 1 to 6wt% (column 15, lines 16-23). Theyssen also discloses additives in the concentrate, including alkoxyated fatty alcohols (column 14, lines 33-40). Additionally, Theyssen discloses up to 99wt% of well known aids and additives in the lubricant (Column 5, line 30).

However, Theyssen does not specifically disclose a  $C_9$ - $C_{11}$  propoxylated alcohol.

Li also discloses a lubricant for conveyor systems (column 1, lines 8-12). This composition is further disclosed as containing a surfactant to increase detergency and lubricity (column 6, lines 59-67). Suitable surfactants include alkoxyated alcohols having 8 to 24 carbon atoms (column 7, lines 18-25). Although Li teaches that ethoxylated alcohols are preferred, the disclosure of the invention is broad enough to encompass propoxylated alcohols. Furthermore, propoxylated alcohols as surfactants are well known in the lubricant art (see column 17, lines 32-45 of De Lima (US 6,589,929)).

Furthermore, Zeman teaches that alkoxyated alcohols are typical and commonly known antifoaming agents (column 41, lines 27-29). Since the instant specification and Declaration do not provide criticality for the two components instantly claimed, it would have been obvious to one of ordinary skill at the time of the invention for Theyssen to utilize an alkoxyated alcohol, which encompasses propoxylated alcohols, for the advantageous and commonly known antifoaming characteristics disclosed by Zeman.

Since Theyssen broadly discloses the use of well known additives including alkoxyated fatty alcohols and Li discloses that C<sub>8</sub> to C<sub>24</sub> alkoxyated alcohols are advantageous by providing increased detergency and lubricity, it would have been obvious for Theyssen to also utilize the surfactants disclosed by Li. This would then produce a composition with reduced initial and 5-minute foam.

With regard to **claims 18, 26, 40, and 42**, Theyssen also disclose an anti-foaming agent, a bactericide (a microbial agent), and a corrosion inhibitor in the lubricant concentrate (column 14, lines 41-46).

With regard to **claims 27, 28, and 43**, the lubricant concentrate is diluted with water to a dilution factor of 2 to 10,000, which clearly overlaps the instant claims.

With regard to **claims 44-49, 51, 57, 58, 64, 66, 67, and 69**, Theyssen also discloses the method to lubricate a conveyor surface wherein the lubricant concentrate is applied with a spray nozzle (column 17, lines 25-44).

5. **Claims 19-24, 41, 56, 65, and 70** are rejected under 35 U.S.C. 103(a) as being unpatentable over Theyssen (US 5,935,914) in view of Li (US 6,214,777 B1) and Zeman (US 6,458,343 B1) as applied to claims 1, 30, 44, 57, and 67 above, and further in view of Person Hei (US 5,723,418).

The combination of Theyssen, Li, and Zeman, as discussed above and incorporated here by reference, discloses a conveyor lubricant comprised of ether carboxylates and additional additives.

Theyssen does not specifically disclose (i) an ether amine or diamine additive or (ii) a dicarboxylic acid corrosion inhibitor in the lubricating composition.

With respect to (i) above, Person Hei discloses a lubricating composition for use on conveyor systems (column 1, lines 6-18). The composition comprises an amine compound of formula  $R_1-O-R_2-NH_2$  or  $R_1-O-NH-R_3-NH_2$ , where  $R_1$  is a linear  $C_6-C_{18}$ ,  $R_2$  is a linear  $C_1-C_8$  alkyl, and  $R_3$  is a linear or branched  $C_1-C_8$  alkyl group (column 2, lines 14-26). Either compound, when utilized in a conveyor lubricant, is shown to provide lubricity, antimicrobial character, and reduction in formation of precipitates (column 2, lines 60-67). Person Hei also discloses the ether amine as a mixture of tetradecyloxypropyl-1,3-diamino propane and dodecyloxypropyl-1, 3-diaminopropane utilized in the conveyor lubricant (Table 3, column 7, where  $C_{12}$  overlaps dodecyl). When the lubricant comprising this compound was subjected to a mild steel corrosion inhibition test, no visible signs of corrosion were produced (column 7, lines 24-50). Therefore, this compound is advantageous to a conveyor lubricating composition.

Since the scope of Theyssen is open to various additives and specifically discloses an amine compound and Person Hei discloses an amine additive with many advantages in a conveyor lubricant, it would have been obvious for Theyssen to also utilize the amines disclosed by Person Hei. Furthermore, although Person Hei does not specifically disclose the amines as a corrosion inhibitor, they would intrinsically act as one in a lubricating composition.

With respect to (ii) above, Person Hei discloses a dicarboxylic acid corrosion inhibitor, specifically adipic or glutaric, which overlap the instantly claimed formula

(column 4, lines 18-21). These specific corrosion inhibitors, when utilized in a conveyor lubricant, were shown to provide corrosion protection against mild steel and acted as an amine neutralizing agent to benefit production cost and efficiency (column 8, lines 5-29). Therefore, since Theyssen is silent as to the specific corrosion inhibitor and Person Hei discloses a specific corrosion inhibitor with various advantages in a conveyor lubricant, it would have been obvious for Theyssen to also utilize the dicarboxylic acid corrosion inhibitor.

6. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Theyssen (US 5,935,914) in view of Li (US 6,214,777 B1), Zeman (US 6,458,343 B1), and Person Hei (US 5,723,418) as applied to claim 24 above, and further in view of Login (US 4,395,373).

The combination of Theyssen, Li, Zeman, and Person Hei, as discussed above and incorporated here by reference, disclose a conveyor lubricant comprised of ether carboxylates. Other additives are included in the composition including corrosion inhibitors and anti-foaming agents.

However, Theyssen does not specifically disclose a phosphated amine oxide.

Login discloses that phosphated amine oxides can be used as corrosion inhibitors and foaming agents (column 9, lines 15-22). Therefore, since Theyssen is silent as to the specific corrosion inhibitor and foaming agent, and Login discloses one compound that can be used for both additives disclosed by Theyssen, it would have been obvious for Theyssen to utilize the phosphated amine oxide in the lubricant

composition in order to provide the disclosed corrosion inhibition and antifoam production.

7. **Claims 9-13, 35, 36, and 38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Theyssen (US 5,935,914) in view of Li (US 6,214,777 B1) and Zeman (US 6,458,343 B1), as applied to claims 1 and 30 above, and further in view of Gerke (US 2004/0072704 A1).

The combination of Theyssen, Li, and Zeman, as discussed above and incorporated here by reference, discloses a conveyor lubricant comprised of ether carboxylates.

However, Theyssen does not specifically disclose the ethoxylation or propoxylation of the ether carboxylate.

Gerke teaches that it is known and common in the art for ether carboxylates to comprise a degree of ethoxylation from 4 to 10 ([0264]). Therefore, it would have been obvious to one of ordinary skill at the time of the invention for the ether carboxylate of Theyssen to also comprise the same ethoxylation.

Furthermore, it is the examiner's position that it also would have been obvious for the ether carboxylates to comprise from 4 to 10 moles propoxylation since it would produce the same effect as 4 to 10 moles ethoxylation, absent evidence to the contrary.

8. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Theyssen (US 5,935,914) in view of Li (US 6,214,777 B1) and Zeman (US 6,458,343 B1).as applied to claims 1 and 30 above, and further in view of Behler (US 4,894,485)

The combination of Theyssen, Li, and Zeman, as discussed above and incorporated here by reference, discloses a conveyor lubricant comprised of ether carboxylates.

However, Theyssen does not disclose using ether carboxylates that are ethoxylated and propoxylated.

Behler discloses an ether carboxylate formed by ethylene oxide or propylene oxide or by the mixture of ethylene oxide and propylene oxide (column 2, lines 23-61). This corresponds to the ether carboxylate as being ethoxylated, propoxylated, or both. Therefore, Behler teaches the mixture of both ethoxylated and propoxylated ether carboxylates.

Since Behler teaches that it is known in the art to combine ethoxylated and propoxylated ether carboxylates in a mixture, it therefore would have been obvious for Theyssen to use a combination of the two in the lubricating composition. Furthermore, it would have been obvious for Theyssen to also use the combination with 5 moles of ethoxylated ether carboxylates and 2 to 10 moles propoxylated ether carboxylates since it has been held that discovering these optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233 (CCPA 1955)).

***Response to Arguments***

9. Applicant's arguments filed 10/06/2009 have been fully considered but they are not persuasive.

Specifically, applicant argues (A) that the Examiner's statement that alkoxyolated alcohols encompass propoxyolated alcohols is incorrect.

With respect to argument (A), US 2009/0203565 A1 to Dooley et al. teaches that alkoxyolated alcohols include ethoxyolated, propoxyolated, or ethoxyolated and propoxyolated alcohols. Therefore, the propoxyolated alone, as taught by Dooley, overlaps the instant claims. Additionally, the ethoxyolated and propoxyolated alcohol also overlaps the instant claims.

Specifically, applicant argues (B) that they do not agree with the Examiner's statement that they have not shown criticality for the C<sub>9</sub>-C<sub>11</sub> propoxyolated alcohol.

With respect to argument (B), Applicant argues that Example 1 and Comparative Example L provide criticality for the C<sub>9</sub> to C<sub>11</sub> propoxyolated alcohol. As shown on page 16 of the instant specification Example 1 contains Degressal which Applicant explains is a C<sub>9</sub>-C<sub>11</sub> propoxyolated alcohol. Example L, as shown on page 22 contains Triton, which Applicant also explains is a C<sub>8</sub>-C<sub>11</sub> ethoxyolated propoxyolated alcohol or alkoxyolate. Applicant then explains that Example 1 provides better foam testing results, as shown in Table 10 of the instant specification, so that criticality is provided for having the claimed C<sub>9</sub>-C<sub>11</sub> propoxyolated defoamer.



However, the comparative showings must compare the claimed subject matter with the closest prior art to be effective. See *In re Burckel*, 592 F.2d 1175, 1179, 201 USPQ 67, 71 (CCPA 1979). Example L, the comparative data, shows an ethoxylated propoxylated defoamer while the prior art of record does not teach an ethoxylated propoxylated alcohol. Li teaches a preferred ethoxylated alcohol but is open to propoxylated alcohols. Li does not specifically disclose an ethoxylated propoxylated alcohol as included in comparative Example L. Although Applicant argues that they have compared the closest prior art against their claimed invention when they compared Comparative Example L, this it not found persuasive. The issue is whether criticality is provided over Theyssen which does not contain a defoamer.

It is also the Examiner's position that Comparative Example L does not teach away from the claimed invention. Table 10 of the instant specification teaches Comparative Example L as having reduced initial and 5 minute foam as claimed. Although Applicant argues that Table 10 of the instant specification teaches wherein Comparative L does teach away from the superior lower foaming compositions of the instant invention, this is not found persuasive. The instant claims only recite reduced initial foam and a 5-minute foam. Table 10 shows Comparative Example comprises an initial foam of 310 mls, which is less than Comparative Example K of 315 mls. Therefore, Comparative Example has reduced initial foam. Furthermore, the 5 minute foam of Comparative Example L is shown as 305 mls, which is a 5 mls drop from the initial foam. Therefore, Comparative Example L also forms reduced 5 minute foam.

The instant claims only teach a reduction in foam and do not teach a superior reduction as Applicant argues.

Furthermore, Example 1 and the comparative examples must be a proper side-by-side comparison of the inventive and comparative data. Example 1 uses a C<sub>9</sub>-C<sub>11</sub> alcohol while Comparative Example L uses a C<sub>8</sub>-C<sub>10</sub> alcohol. Therefore, the two examples do not provide a proper side-by-side comparison of a propoxylated alcohol and an ethoxylated alcohol.

### ***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMY T. LANG whose telephone number is (571)272-9057. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anhtuan Nguyen can be reached on 571-272-4963. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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